REMARKS

Status of the claims

Claims 1-5, 23-28, 30-48 and 52-57 were pending. Claim 30 has been amended to make explicit that at least one of the zinc coordinating residues of the non-canonical zinc finger component is a histidine residue. In addition, claim 30 has been amended to incorporate the limitations of withdrawn claim 2. Accordingly, claims 2-5 have been canceled, without prejudice or disclaimer. Claim 56 has also been amended to specify that the target sequence is a nucleic acid sequence. As noted by in the Office Action, this amendment does not add new matter and does not require an additional search. Accordingly, entry after final is appropriate and claims 1, 23-28, 30-48 and 52-57 are pending as shown above and claims 25-28, 30-32, 36, 37, 39-41 and 53-54 under consideration.

Restriction/Election

As previously acknowledged, the Restriction Requirement has been made Final. With regard to the remaining election of species requirements, Applicants again note that there upon indication that elected claim 30 is allowable, the withdrawn claims should be examined.

Rejections Withdrawn

Applicants note that the objection to claim 22 was withdrawn in light of cancellation of this claim. In addition, the double-patenting rejection has obviated by the filing and acceptance of the appropriate terminal disclaimer. Finally, the rejections under 35 U.S.C. § 112, 2nd paragraph have also been withdrawn.

35 U.S.C. § 112, first paragraph, written description

Claims 2, 4, 25-28, 30-32, 36, 37, 39-41 and 53-57 were again rejected under 35 U.S. C. § 112, first paragraph as allegedly failing to comply with the written description requirement. (Office Action, pages 4-10). The Examiner cites Green et al. in support of the assertion that it is somehow unpredictable as to whether the non-canonical zinc finger

components of claim 30 (and claims dependent therefrom) having 4 cysteine and histidine zinc coordinating residues (with at least one histidine residue) and in which at least one of the amino terminal residues is a histidine residue or one carboxy-terminal residue is a cysteine residue would result in proteins that bind to their target sites. *Id.*

Pending claim 30 and claims that depend (directly or ultimately) from claim 30 are drawn to zinc finger proteins in which at least one of the component zinc finger domains is a non-canonical zinc finger that must include at least one histidine residue as a zinc coordinating residue. Similarly, claims 56 and 57 require that the non-canonical zinc finger component(s) have a CCHC or CCCH zinc coordinating residue structure. All pending claims also require that the target sequence is a nucleic acid sequence.

Thus, the claims are drawn to a limited number of embodiments, each of which is fully and literally described by the as-filed specification and original claims. See, page 4, lines 6-13; page 7, lines 21-35; original claims 6-21. Furthermore, as acknowledged, the as-filed specification exemplifies the CCHC embodiment as set forth in claims 56 and 57 and more than adequately describes binding to a target nucleotide sequence. Office Action, page 7. It is axiomatic that Applicants are not limited to that which is exemplified and the description requirement is satisfied in the instant case because the skilled artisan can envisage each and every embodiment falling with the scope of the claims (CCHC, CHCC, CHHC, CHCH, HCCC, HCHC, CHCH, HHCH, HHHC, HCCH).

Moreover, the assertion that binding functionality is unpredictable, or in any way makes the genus encompassed by the claims unduly large, is completely unsupported by the evidence of record. There is detailed disclosure in the specification indicating that it was predictable at the time of filing that binding specificity was dependent on the recognition helix sequence, not the zinc coordinating residues. Variability in the recognition helix region of these proteins does not affect the description of the claimed proteins – any recognition helix can be used, so long as the zinc coordinating residues of at least one finger fall into the limited genus recited in the claims. As it is admitted that cysteine and histidine both act as zinc coordinating residues, it is clear that the skilled

artisan would immediately envisage any of the claimed non-canonical finger structures with the selected recognition helix to bind to the selected nucleic acid target site.

The amount of experimentation required to determine which of the limited number of C and H containing non-canonical zinc finger components is utterly irrelevant to a written description inquiry. Rather, the question is what the specification as filed teaches about such non-canonical structures and whether Applicants were in possession of the claimed compositions at the time of filing. As set forth throughout the as-filed specification, original claims (see, above) and Examples, the skilled artisan would immediately envisage all recited cysteine/histidine combinations from the as-filed disclosure and accordingly, Applicants were in possession of the claimed subject matter.

Finally, Green in no way establishes that the claimed subject matter is in any way unpredictable. Because the claimed molecules and methods all require the presence of at least one histidine residue as a zinc coordinating residue, Green's discussion of C4 zinc fingers is an embodiment excluded by the pending claims and this reference is not relevant to any of the instant claims.

In sum, when properly construed, the claims are adequately described, as set forth above and acknowledged by the Office. Accordingly, the rejection should be withdrawn.

35 U.S.C. § 103

Claims 2, 4, 22, 25-28, 30-32, 36-37, 39-41 and 53-55 were again rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent No. 7,151,201 (hereinafter "Barbas") in view of Green et al. (1998) *Biochem. J.* 333:85-90 (hereinafter "Green"). (Office Action, pages 10-11). In addition, claim 37 was rejected as allegedly obvious over Barbas in view of Green and in further view of Guyder. (Office Action, pages 16-17). Barbas was cited for teaching C2H2 zinc finger proteins with engineered recognition helices and Green was cited for teaching that C2H2 zinc finger proteins that were altered to C4 proteins bind to their cognate target sites. *Id.*

The pending claims require that the zinc coordinating residues of the non-canonical (non-CCHH) zinc finger component include at least one histidine residue. As acknowledged by the Examiner, Barbas fails to disclose non-CCHH proteins as claimed

and Green discloses only CCCC zinc finger components. Thus, there is no combination of Barbas and Green that can lead the skilled artisan to the non-canonical zinc finger proteins of the instant invention. Further, Guyer teaches a hybrid transcription factor comprising the DNA binding domain of the *S. cerevisiae* GAL4 protein and the transcription activation domain of the maize C1. There is no discussion of non-canonical zinc finger components including at least on histidine. Accordingly, Guyer fails to cure the deficiencies of Barbas and Green. Thus, a *prima facie* case of obviousness has not been and cannot be established and the rejections should be withdrawn.

CONCLUSION

In light of the amendments and remarks presented herein, it is believed that the elected subject matter is in condition for allowance. Applicants therefore request examination of generic subject matter. If the Examiner believes that a telephone conversation would expedite prosecution, she is invited to contact the undersigned at the telephone number given below.

Respectfully submitted,

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